Fig. 1

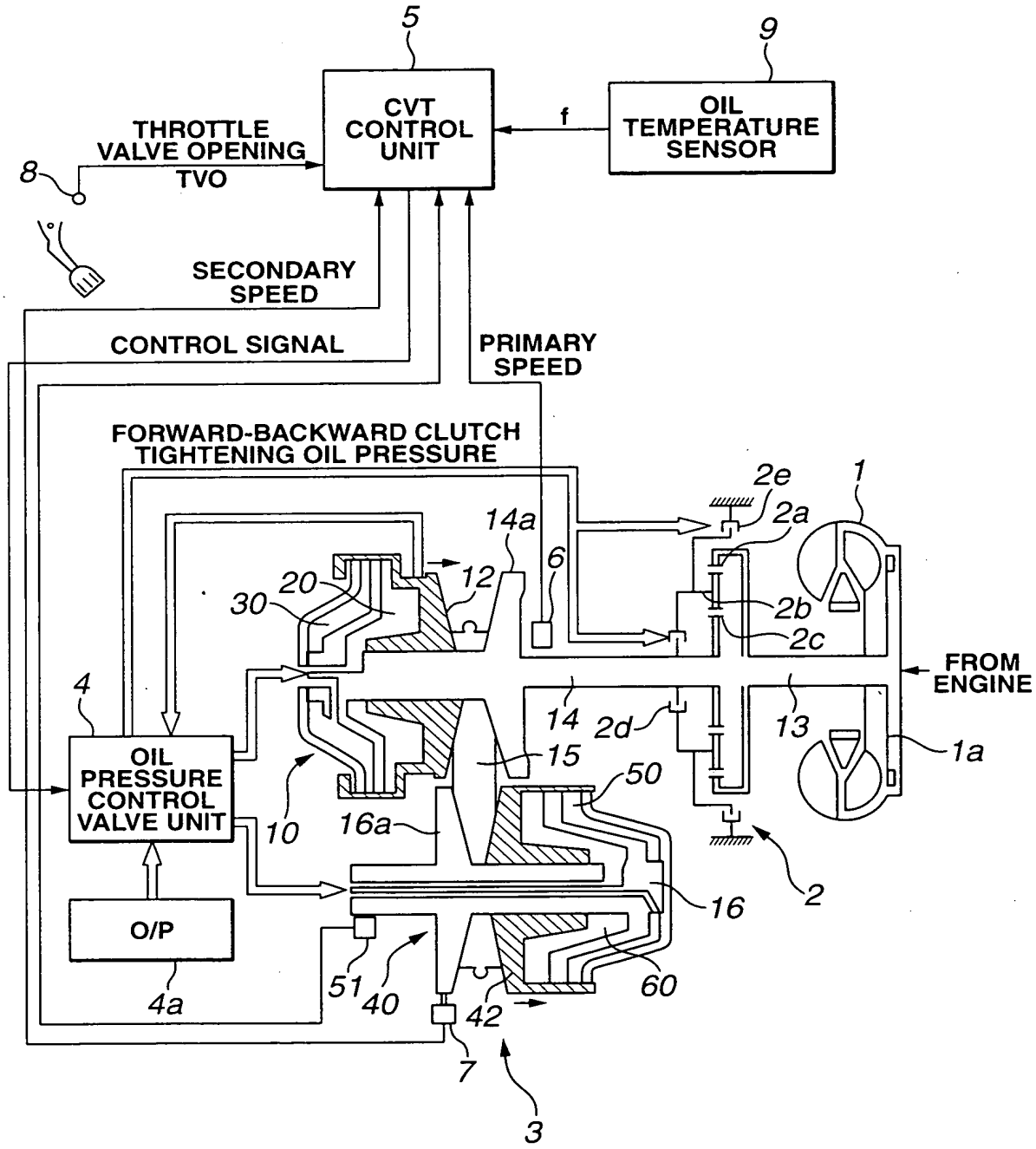
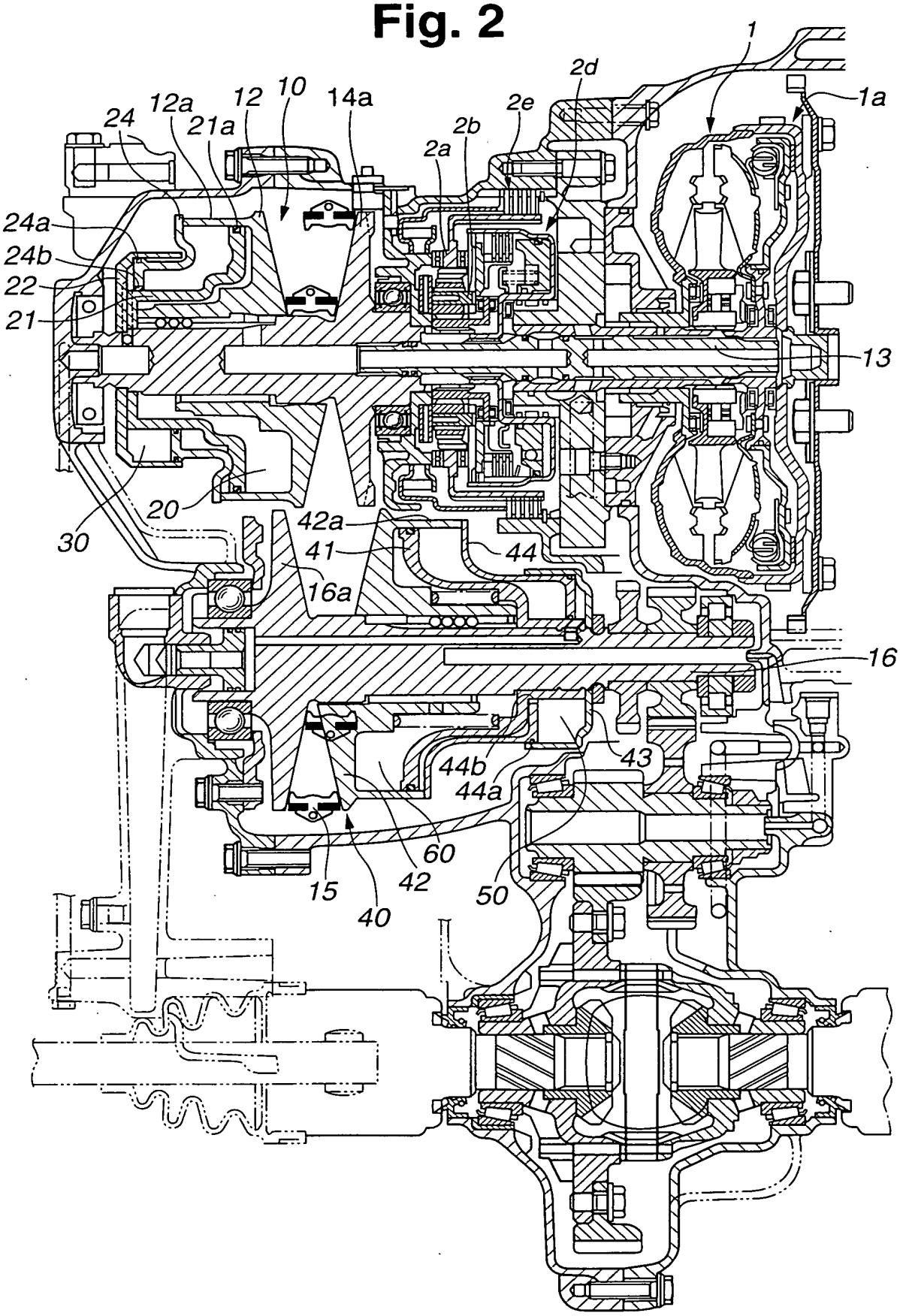

5
9
CVT CONTROL UNIT
f
OIL TEMPERATURE SENSOR
THROTTLE VALVE OPENING TVO
8
SECONDARY SPEED
CONTROL SIGNAL
PRIMARY SPEED
FORWARD-BACKWARD CLUTCH TIGHTENING OIL PRESSURE
2e
1
2a
14a
6
12
20
30
2b
2c
FROM ENGINE
4
14
2d
13
1a
15
50
OIL PRESSURE CONTROL VALVE UNIT
10
16a
16
2
O/P
51
40
42
60
4a
7
3

Fig. 2


1
1a
2d
2e
2b
2a
12a
12
10
14a
24
21a
24a
24b
22
21
13
20
30
42a
41
44
16a
16
43
44b
44a
60
42
15
40
50

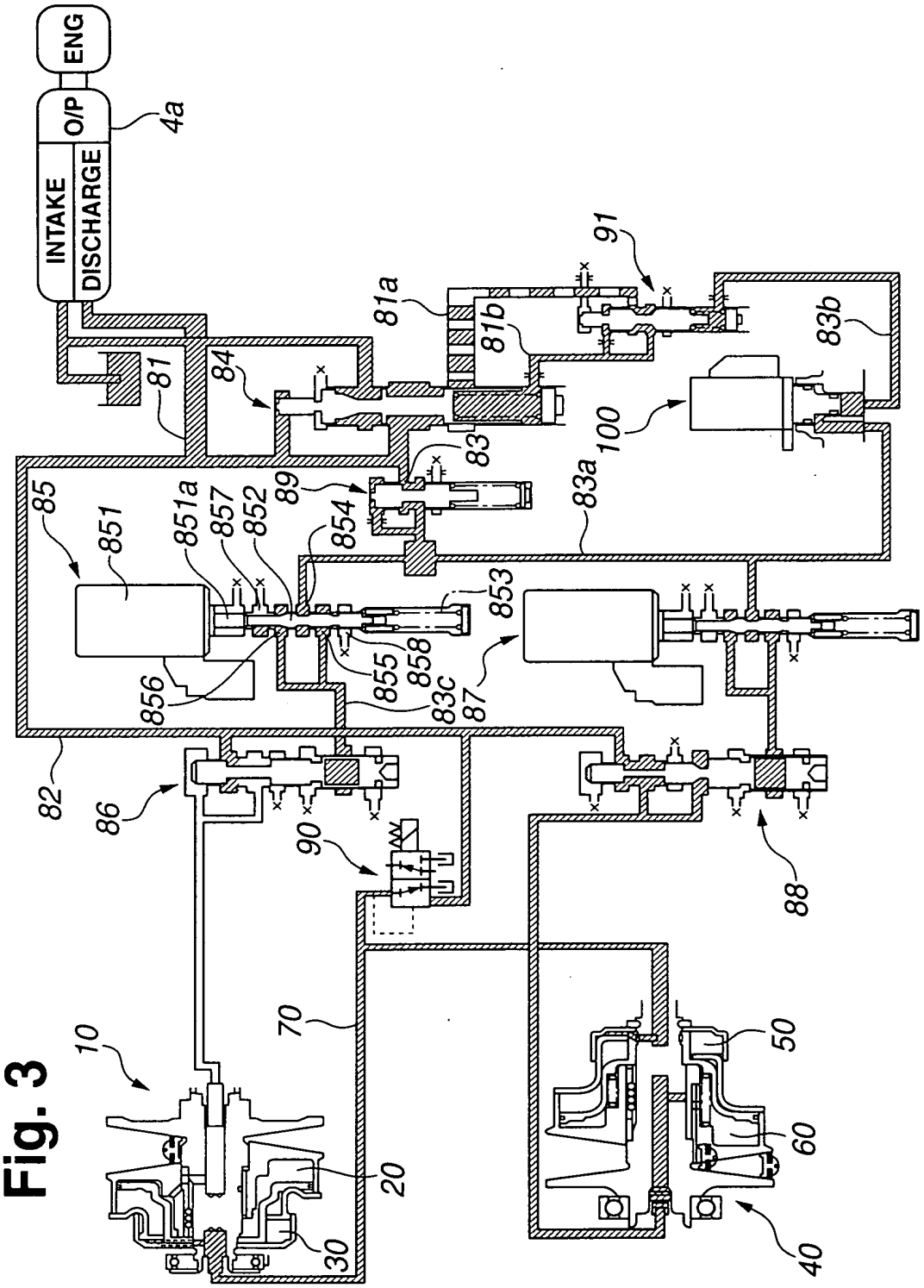

ENG
O/P
INTAKE
DISCHARGE
4a
91
81a
81b
83b
81
84
83
100
89
83a
85
851
851a
857
852
854
853
855
858
856
83c
87
82
86
90
88
70
10
50
60
20
30
40

Fig. 3

Fig. 4

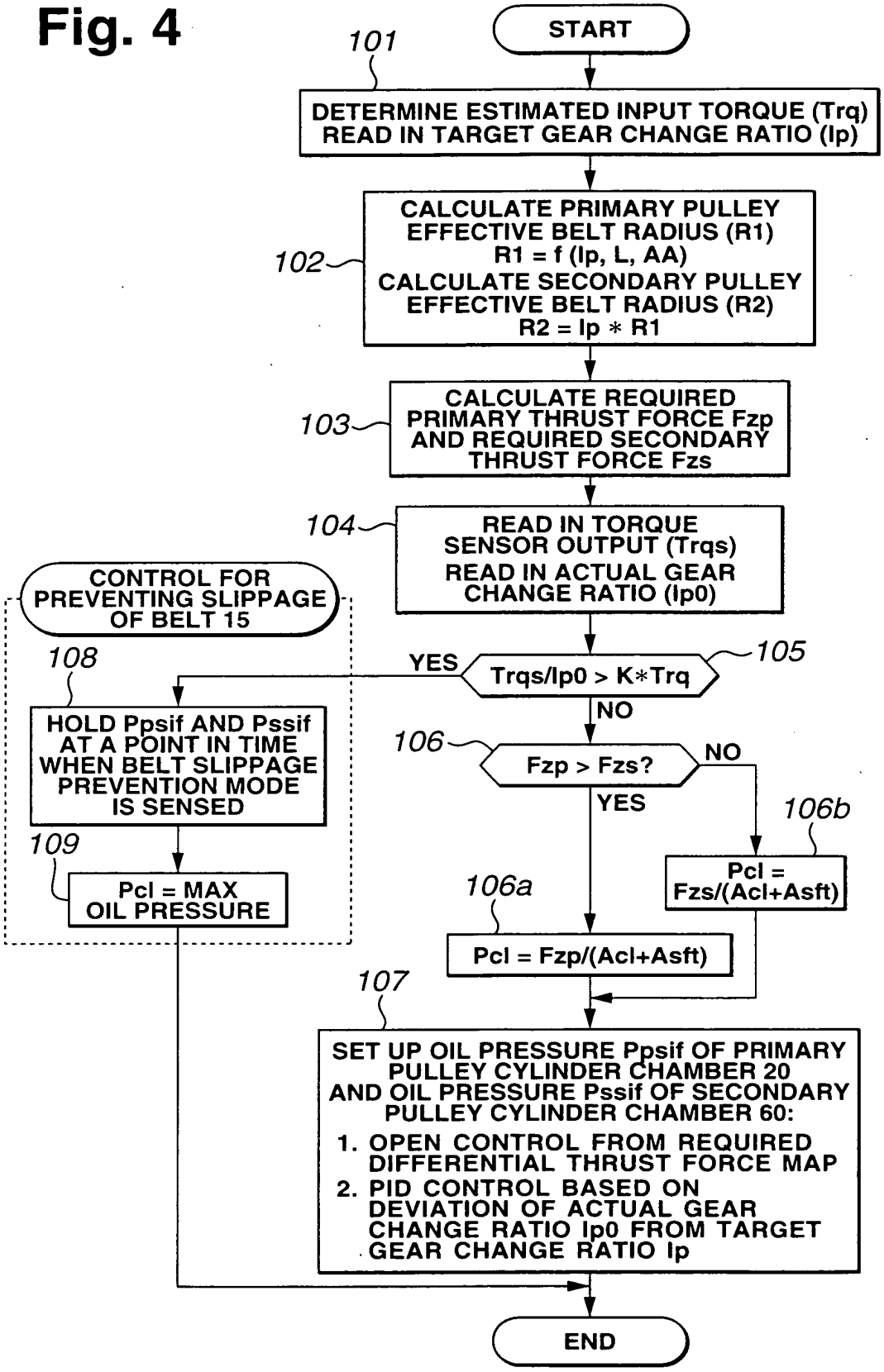

START
101
DETERMINE ESTIMATED INPUT TORQUE (Trq)
READ IN TARGET GEAR CHANGE RATIO (Ip)
102
CALCULATE PRIMARY PULLEY EFFECTIVE BELT RADIUS (R1)
R1 = f (Ip, L, AA)
CALCULATE SECONDARY PULLEY EFFECTIVE BELT RADIUS (R2)
R2 = Ip * R1
103
CALCULATE REQUIRED PRIMARY THRUST FORCE Fzp AND REQUIRED SECONDARY THRUST FORCE Fzs
104
READ IN TORQUE SENSOR OUTPUT (Trqs)
READ IN ACTUAL GEAR CHANGE RATIO (Ip0)
CONTROL FOR PREVENTING SLIPPAGE OF BELT 15
105
YES
Trqs/Ip0 > K*Trq
NO
108
HOLD Ppsif AND Pssif AT A POINT IN TIME WHEN BELT SLIPPAGE PREVENTION MODE IS SENSED
106
Fzp > Fzs?
NO
YES
106b
109
Pcl = MAX OIL PRESSURE
Pcl = Fzs/(Acl+Asft)
106a
Pcl = Fzp/(Acl+Asft)
107
SET UP OIL PRESSURE Ppsif OF PRIMARY PULLEY CYLINDER CHAMBER 20 AND OIL PRESSURE Pssif OF SECONDARY PULLEY CYLINDER CHAMBER 60:
1. OPEN CONTROL FROM REQUIRED DIFFERENTIAL THRUST FORCE MAP
2. PID CONTROL BASED ON DEVIATION OF ACTUAL GEAR CHANGE RATIO Ip0 FROM TARGET GEAR CHANGE RATIO Ip
END

Fig. 5

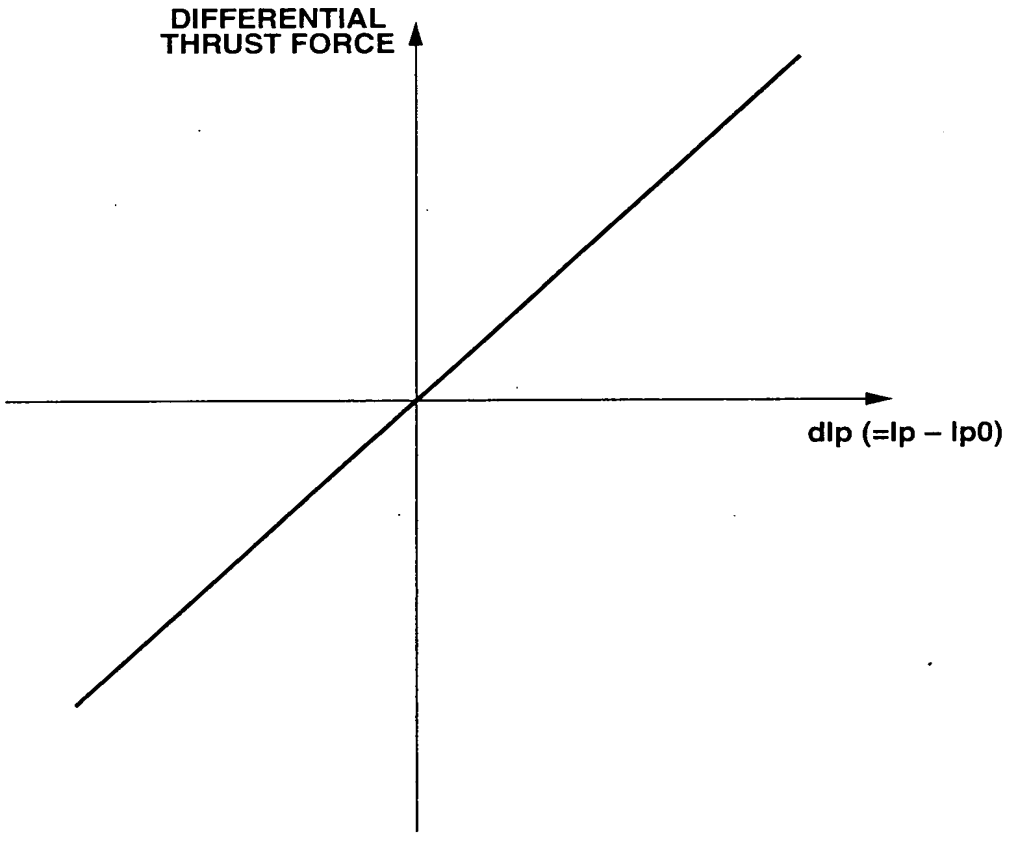


Fig. 6(a)
RELATED ART

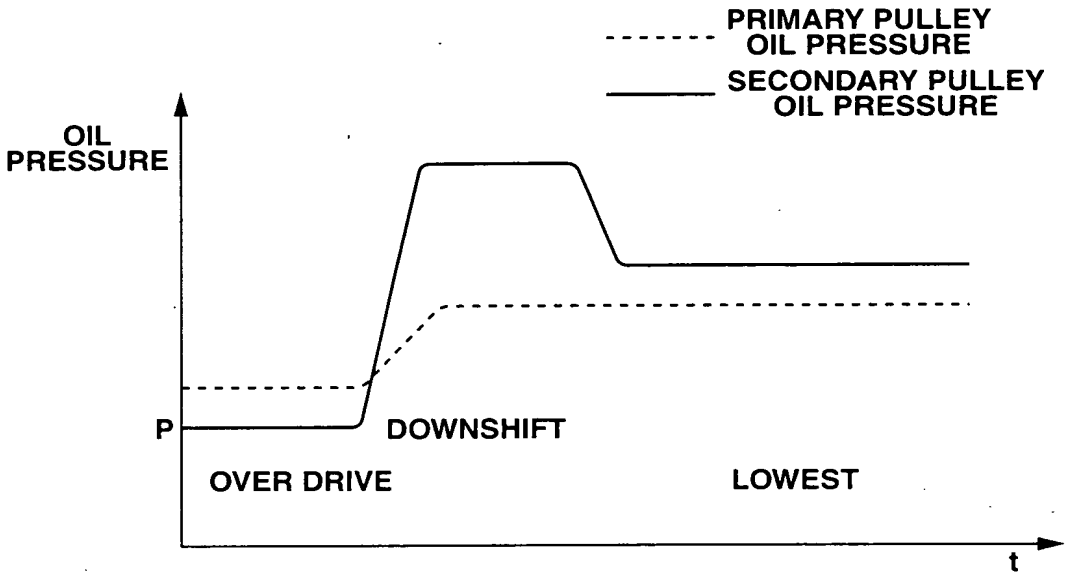
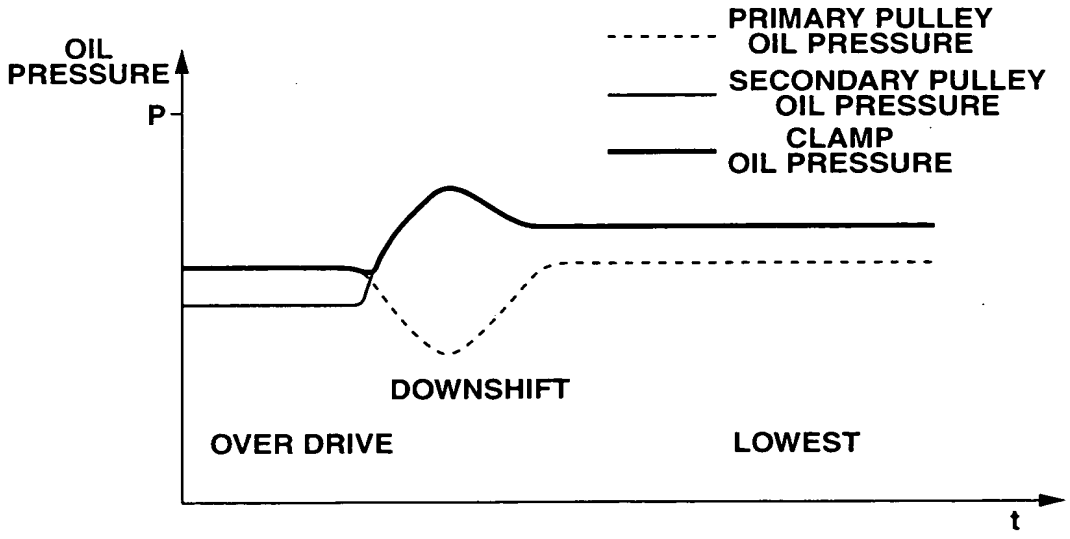


Fig. 6(b)



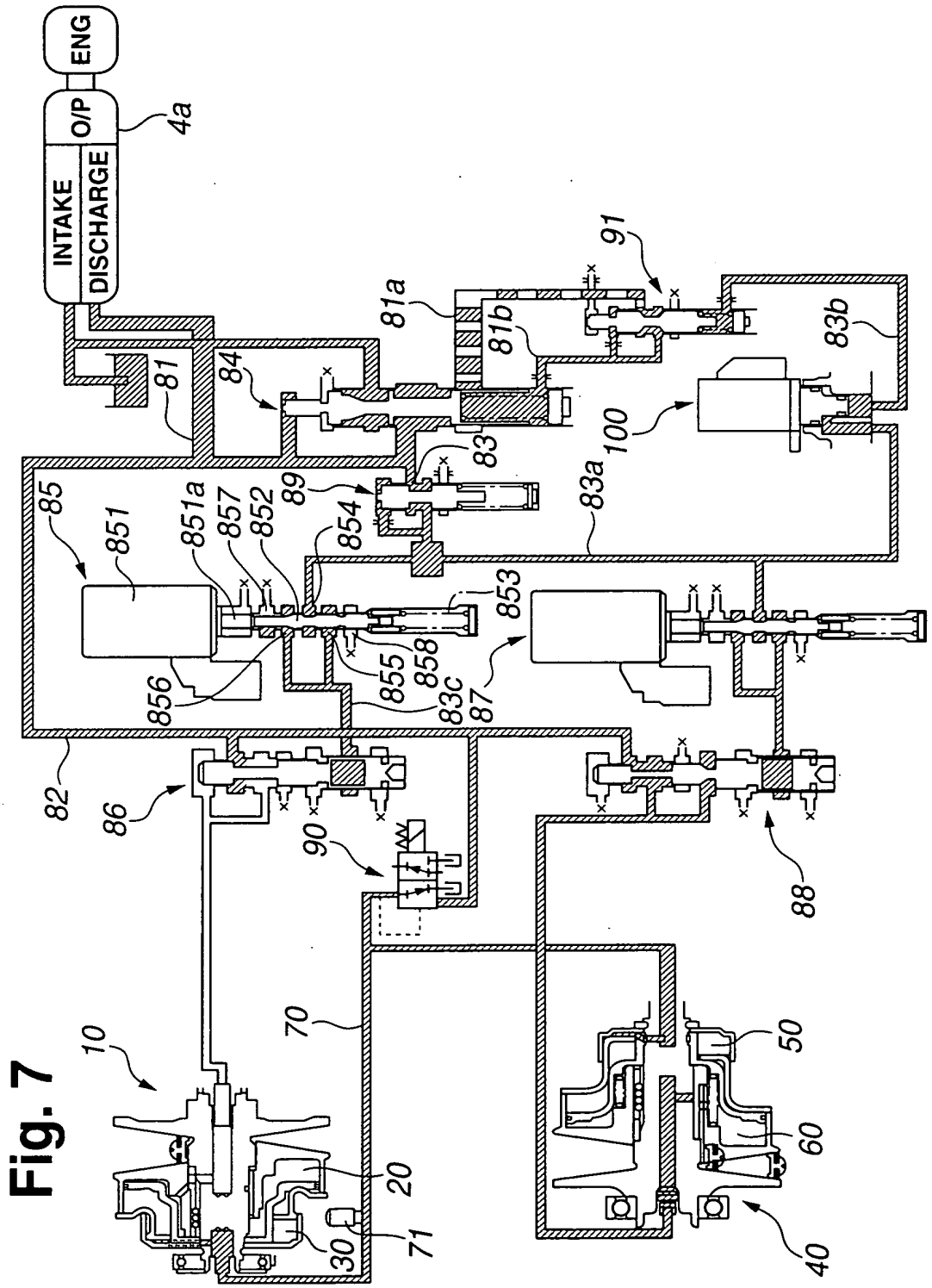

ENG
O/P
INTAKE
DISCHARGE
4a
91
81a
81b
83b
81
84
83
100
83a
85
851
851a
857
852
89
854
853
856
855
858
83c
87
82
86
90
88
70
10
50
60
20
30
71
40

Fig. 7

Fig. 8

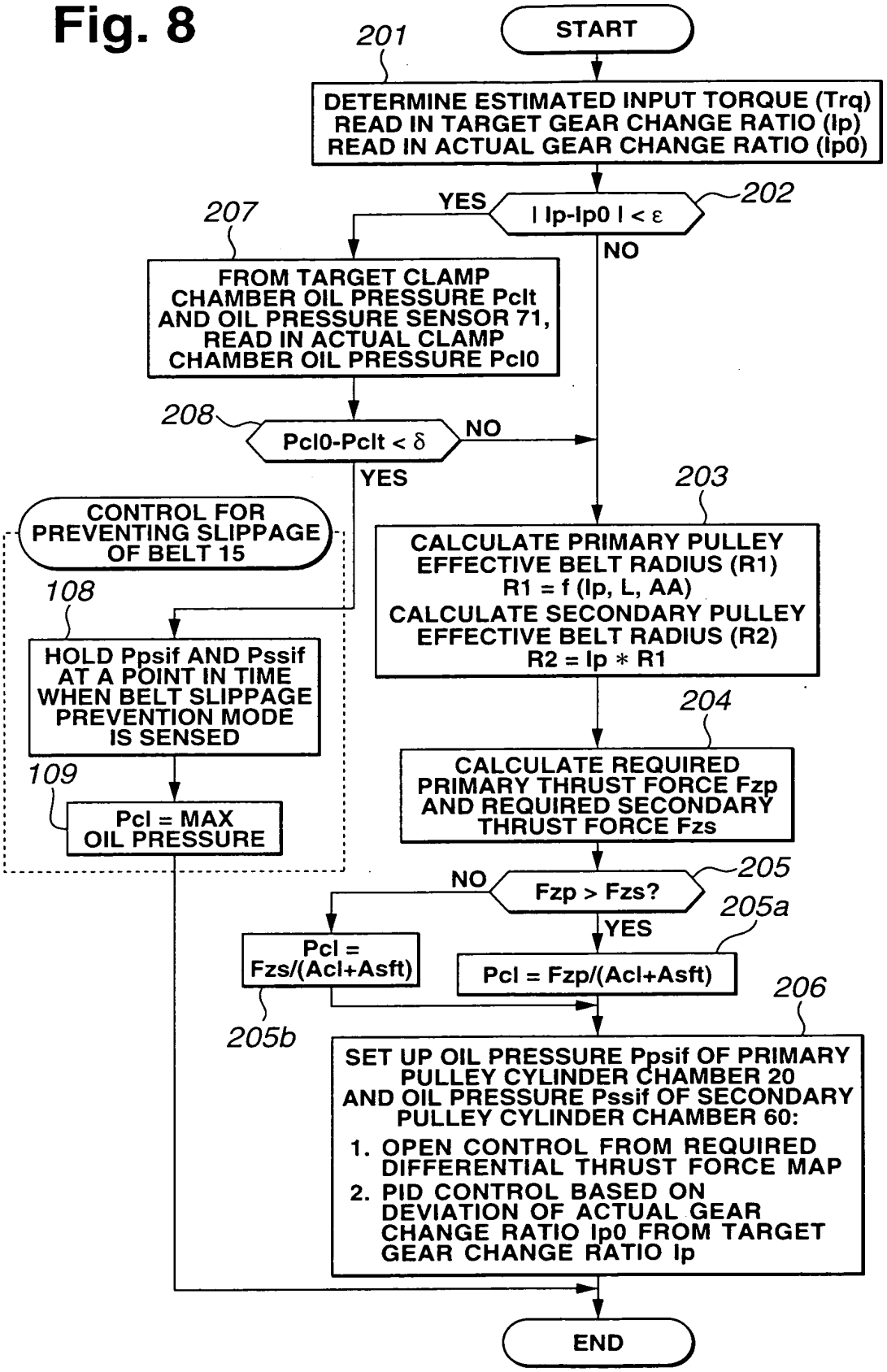

START
201
DETERMINE ESTIMATED INPUT TORQUE (Trq)
READ IN TARGET GEAR CHANGE RATIO (Ip)
READ IN ACTUAL GEAR CHANGE RATIO (Ip0)
202
| Ip-Ip0 | < ε
YES
NO
207
FROM TARGET CLAMP CHAMBER OIL PRESSURE Pclt AND OIL PRESSURE SENSOR 71, READ IN ACTUAL CLAMP CHAMBER OIL PRESSURE Pcl0
208
Pcl0-Pclt < δ
NO
YES
CONTROL FOR PREVENTING SLIPPAGE OF BELT 15
108
HOLD Ppsif AND Pssif AT A POINT IN TIME WHEN BELT SLIPPAGE PREVENTION MODE IS SENSED
109
Pcl = MAX OIL PRESSURE
203
CALCULATE PRIMARY PULLEY EFFECTIVE BELT RADIUS (R1)
R1 = f (Ip, L, AA)
CALCULATE SECONDARY PULLEY EFFECTIVE BELT RADIUS (R2)
R2 = Ip * R1
204
CALCULATE REQUIRED PRIMARY THRUST FORCE Fzp AND REQUIRED SECONDARY THRUST FORCE Fzs
205
Fzp > Fzs?
NO
YES
205a
Pcl = Fzp/(Acl+Asft)
Pcl = Fzs/(Acl+Asft)
205b
206
SET UP OIL PRESSURE Ppsif OF PRIMARY PULLEY CYLINDER CHAMBER 20 AND OIL PRESSURE Pssif OF SECONDARY PULLEY CYLINDER CHAMBER 60:
1. OPEN CONTROL FROM REQUIRED DIFFERENTIAL THRUST FORCE MAP
2. PID CONTROL BASED ON DEVIATION OF ACTUAL GEAR CHANGE RATIO Ip0 FROM TARGET GEAR CHANGE RATIO Ip
END

Fig. 9

$$\begin{cases} Fzp = Pp \cdot Asft + Pcl \cdot Acl \\ Fzs = Ps \cdot Asft + Pcl \cdot Acl \end{cases} \xrightarrow{\text{CONVERT}} \begin{cases} Pp \cdot Asft = Fzp - Pcl \cdot Acl \\ Ps \cdot Asft = Fzs - Pcl \cdot Acl \end{cases}$$

WHEN Fzp > Fzs, = P(p,s)·Asft, X = -Pcl·Acl